

CLAIMS

What is claimed is:

- 1 1. An apparatus, comprising:
 - 2 (a) a single die;
 - 3 (b) a first circuitry disposed on said single die including:
 - 4 a deserializer for converting at least one serial differential bit
 - 5 stream into a character stream;
 - 6 a decoder receiving said character stream to form a decoded data
 - 7 stream; and
 - 8 a means for aggregating said decoded data stream and
 - 9 reconstructing a parallel word according to a desired protocol definition;
 - 10 (c) a second circuitry disposed on said single die including:
 - 11 a means for presenting a second parallel word according to said
 - 12 desired protocol definition to form an altered data stream,
 - 13 an encoder receiving said altered data stream to form an encoded
 - 14 data stream;
 - 15 a serializer for converting said encoded data stream into said at
 - 16 least one serial differential bit stream, wherein said first circuitry and said
 - 17 second circuitry are capable of implementing at least two interconnect
 - 18 protocol definitions.
- 1 2. The apparatus as claimed in claim 1, wherein said at least two
 - 2 interconnect protocol definitions include a single-thread, multiple-speed protocol
 - 3 method, a multiple-thread, single-speed protocol method, and a multiple-thread,
 - 4 multiple-speed protocol method.
- 1 3. The apparatus as claimed in claim 2, wherein at least two
 - 2 interconnect protocol definitions include a 10 Gigabit Fibre Channel protocol
 - 3 definition and a 4 Gigabit, 2 Gigabit, 1 Gigabit Fibre Channel protocol definition.

1 4. A method, comprising:
2 (a) converting a at least one serial data stream to a character stream;
3 (b) decoding of said character stream to form a decoded data stream; and
4 (c) aggregating said decoded data stream according to a desired interconnect
5 protocol definition;
6 wherein circuitry disposed on a single die is capable of transforming at least one
7 serial bit stream into a word in accordance with at least two interconnect protocol
8 definitions.

1 5. The method as claimed in claim 4, wherein said at least two
2 interconnect protocol definitions include a single-thread, multiple-speed protocol
3 method, a multiple-thread, single-speed protocol method and a multiple-thread,
4 multiple-speed protocol method.

1 6. The method as claimed in claim 5, wherein said at least two
2 interconnect protocol definitions include a 10 Gigabit Fibre Channel protocol
3 definition and a 4 Gigabit, 2 Gigabit, 1 Gigabit Fibre Channel protocol definition.

1 7. The method as claimed in claim 6, wherein decoding of said at
2 least one serial data streams converts 10 bits of data to 8 bits of data.

1 8. The method as claimed in claim 6, wherein aggregating of said
2 decoded data stream aligns said decoded data stream to reconstruct said parallel
3 data word according to said desired interconnect protocol definition.

1 9. A method, comprising:
2 (a) selecting a word stream for transmission;
3 (b) presenting said word stream according to a desired interconnect protocol
4 definition to form an altered data stream;
5 (c) encoding said altered data stream to form an encoded data stream; and
6 (d) converting said encoded data stream to at least one serial differential bit
7 stream; wherein circuitry disposed on a single die is capable of
8 transforming said word stream into at least one serial differential bit
9 stream in accordance with at least two interconnect protocol definitions.

1 10. The method as claimed in claim 9, wherein said at least two
2 interconnect protocol definitions include a single-thread, multiple-speed protocol
3 method, a multiple-thread, single-speed protocol method, and a multiple-thread,
4 multiple-speed protocol method.

1 11. The method as claimed in claim 10, wherein said at least two
2 interconnect protocol definitions are a 10 Gigabit Fibre Channel protocol
3 definition and a 4 Gigabit, 2 Gigabit, 1 Gigabit Fibre Channel protocol definition.

1 12. The method as claimed in claim 11, wherein encoding of said
2 altered data stream converts 8 bits of data to 10 bits of data.

1 13. An apparatus, comprising:
2 (a) a single die;
3 (b) means for transforming at least one serial differential bit stream into a
4 parallel word; said transforming means being disposed on said single die;
5 (c) means for converting a second parallel word into at least one serial
6 differential bit stream; said converting means being disposed on said
7 single die; said converting means including an input selector in which said
8 apparatus operates according to a selected protocol definition; wherein
9 said transforming means and said converting means are capable of
10 implementing at least two interconnect protocol definitions.

1 14. The apparatus as claimed in claim 13, wherein said at least two
2 interconnect protocol definitions include a single-thread, multiple-speed protocol
3 method, a multiple-thread, single-speed protocol method and a multiple-thread,
4 multiple-speed protocol method.

1 15. The apparatus as claimed in claim 14, wherein at least two
2 interconnect protocol definitions include a 10 Gigabit Fibre Channel protocol
3 definition and a 4 Gigabit, 2 Gigabit, 1 Gigabit Fibre Channel protocol definition.

1 16. The apparatus as claimed in claim 13, wherein said transforming
2 means includes a deserializer, a decoder, and an aggregator capable of
3 implementing at least two interconnect protocol definitions.

1 17. The apparatus as claimed in claim 13, wherein said converting
2 means includes a data presenter, an encoder, and a serializer capable of
3 implementing at least two interconnect protocol definitions.